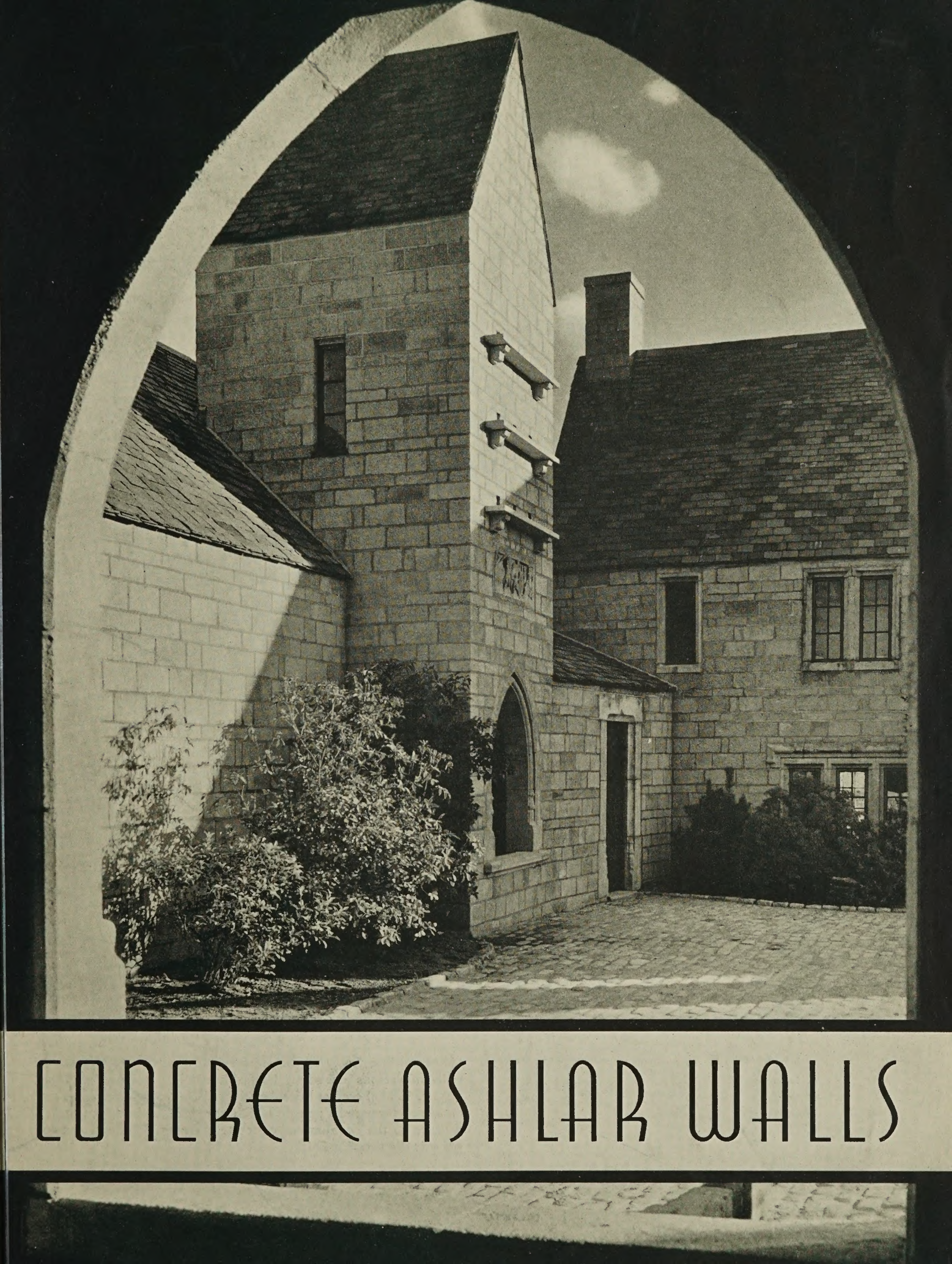
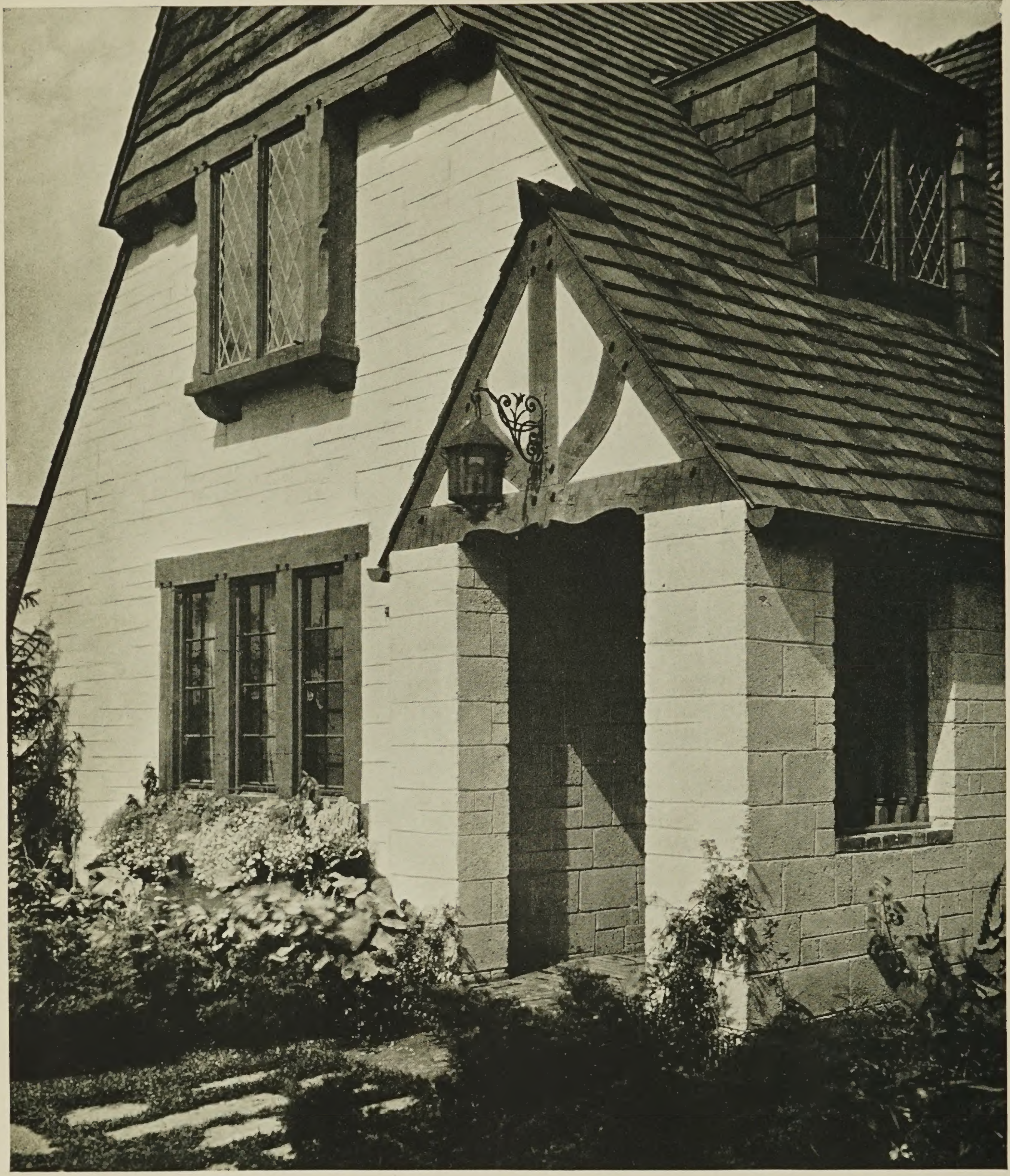


CONCRETE ASHLAR WALLS



Responding freely to architectural design, concrete masonry units of various sizes may be fashioned into walls of unusual beauty. In his home at Lake Angelus, Michigan, Clarence E. Day, architect, prepared a pattern which gave him the beauty of ashlar walls with the economy of concrete masonry. Portland cement paint is the exterior finish.

Concrete Ashlar Walls

By WAL-WARD HARDING, A. I. A.

A MODERN development in the masonry field is the increasing use of ashlar construction employing concrete masonry units. Concrete ashlar is a form of *concrete masonry*, which is the term applied to building units molded from concrete and laid by a mason in a wall. The concrete is made by mixing portland cement with water and other suitable materials, such as sand, pebbles, crushed stone, cinders, burned shale, or slag.

In concrete ashlar construction, special effort is made to produce wall effects having architectural interest. There are various methods by which this may be done: choosing or grading aggregates to produce desirable textures; painting the concrete units when they are manufactured; incorporating mineral color pigments in the faces of the units; texturing the units during manufacture by means of wire or fiber brushes or by spraying with water; covering finished walls with one or two coats of portland cement paint, or similar methods which the architect may devise.

Like concrete masonry construction, concrete ashlar provides at moderate cost the desirable properties of strength, firesafety and attractive appearance as well as the permanence inherent in concrete. Concrete ashlar is used regularly in constructing both interior and exterior walls,—load-bearing or non-load-bearing.

The shaping of concrete masonry units used in concrete ashlar is done in large machines which mold the units in exactly the right sizes and which turn out great quantities in a day's time. When this rapid mass production of units is considered, the economy of concrete ashlar is readily apparent. There was a time when ashlar construction, because of its cost, was used only in the most pretentious structures. But, today, builders find that a finished concrete ashlar wall often will require a smaller expenditure than common types of masonry.

Another factor which results in considerable saving when concrete masonry is used in ashlar construction is that definite patterns may be designed and the required number of each size of unit can be made available to the mason. Consequently, time is saved in setting the units as the mason knows in advance where each unit is to be placed. There is no loss of time in fitting the units together. Another advantage of a definite pattern is the assurance of obtaining the exact architectural effect intended by the designer. Using a pattern precludes the possibility of getting a haphazard arrangement of units which may result when the masonry effect depends entirely upon the mason's ingenuity. Suggested patterns for concrete ashlar are shown in the sample wall sections on page 15.

Concrete ashlar generally is divided into two classifications—*coursed* and *random*. Coursed concrete ashlar may consist entirely of units of one size or several sizes may be used. All horizontal joints may be continuous or horizontal joints may be continuous only at definite intervals.

In random concrete ashlar construction several sizes of units may be used in a pattern which has all the appearance of random masonry when it is repeated again and again throughout the wall. Of course, several sizes may be laid in the true random manner, but best results ordinarily are obtained when a pattern is followed, unless it is possible to have architectural supervision of the masonry work from start to finish. Sketches on pages 4 and 5 show typical examples of coursed and random concrete ashlar.

Laying concrete masonry in either the coursed or random manner follows the accepted practice for construction with concrete building units which are to be left exposed in the wall or are to be painted. Mortar commonly used and recommended consists of one part portland cement, one part hydrated or well slaked lime and six parts of clean mortar sand. It is always desirable to provide watertight mortar joints. Vertical and bed joints should be well filled and weather struck by forcibly compacting the mortar.

Concrete ashlar may be used for both interior and exterior walls—either load-bearing or non-load-

What Ashlar Means

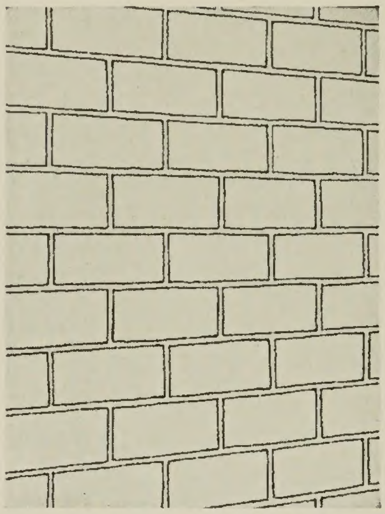
The term *ashlar* has an interesting origin. Ashlar, which is spelled *ashler* and *ashlere* in old documents, came into use through the French from the Latin. In Middle English it was spelled *aschaler* and in Old French *aiseler*. Its Latin origin is somewhat obscure, but it is thought to have been derived from "axilla." In old English documents the phrase "clene hewen ashler" is to be found again and again. In a Latin contract executed in 1388, ashlar construction—spelled *achilar*—is specified for exterior walls.

It is apparent that the term *ashlar* has come down through the centuries. In medieval days ashlar meant a masonry wall composed of squared and finished stone. Its meaning today has been broadened to include walls of squared stone or other masonry units regardless of the manner in which they are finished.

Ashlar construction usually is referred to as *coursed* ashlar or *random* ashlar. It is called coursed ashlar when the units are arranged according to height to form regular courses in the face of the wall. In random ashlar several sizes of units are laid up apparently at random. However, architects prefer that a certain degree of care be used in selecting and placing the different sizes to give the wall architectural interest.

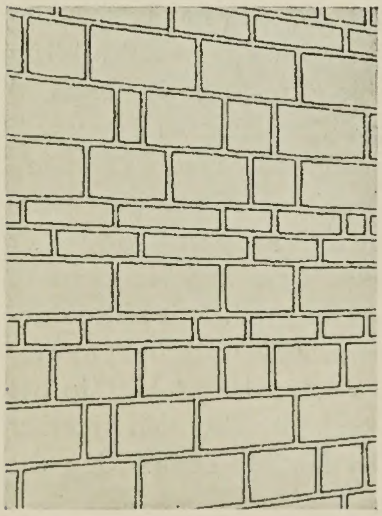
Concrete masonry is a popular form of wall construction with which ashlar effects may be produced with any type of architecture. Typical concrete ashlar is described and pictured in this booklet.

bearing construction; as facing or furring for exterior walls, or for partitions. The concrete units readily meet compressive strength requirements for use in load-bearing walls in the most rigid building codes. The usual code requirement is 700 pounds per square inch, measured over the bearing area of the unit (width multiplied by length), and most concrete units made today exceed this strength by a substantial margin. That the 700-pound strength is considered adequate for load-bearing walls is shown by the fact that the specifications of such technical organizations as the *American Society for Testing Materials*, the *American Concrete Institute*, and *The National Board of Fire Underwriters* require this strength for concrete masonry units in load-bearing walls. Recently the *Federal Specifications Board* of the U. S. Government adopted a specification for concrete masonry units in which a compressive strength of 700 pounds per square inch is required for units with a shell thickness of 1¼ inches or over.



Coursed concrete ashlar, generally described as *range work*, in which only one size of unit is used.

The fire resistance of concrete masonry has been conclusively demonstrated in a series of tests at the *Underwriters' Laboratories, Inc.*, Chicago. An 8-inch wall of concrete masonry made according to Underwriters' standards is classified as a three-hour fire retardant. In these tests, walls of concrete masonry 10 feet wide and 11 feet high are placed with one face in a gas-burning furnace. Within five minutes after the fire is lighted the temperature on the fire side of the wall is 1000 degrees Fahrenheit, a temperature beyond the melting point of some metals. The furnace temperature is gradually increased until 1925 degrees is reached at the end of three hours. All the time the wall is in the furnace it carries a load of 80 pounds per square inch. After the panel is removed from the furnace it is subjected to a heavy stream of water equivalent to that from a fire hose. The performance of concrete masonry in these extremely severe tests has resulted in its high rating as a fire retardant material.



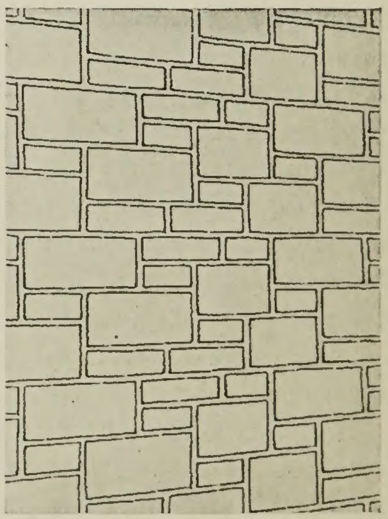
Variable sized units are used in building coursed concrete ashlar of this type. All horizontal mortar joints are continuous. Course heights vary.

Concrete ashlar offers a wide variation of pleasing architectural treatments. In fact, the architect can achieve practically any effect desired. Concrete ashlar permits the use of color and the development of textures which further broaden the usefulness of this type of construction. Color can be introduced by using selected aggregates in the facing of the units when they are manufactured or it can be obtained by using mineral pigments or portland cement paint to color the concrete from which the units are molded. Still another method is to cover the finished wall surface with portland cement paint.

Practically any texture desired from very smooth to a rough, open texture can be produced by concrete masonry manufacturers by the proper selection of aggregates in designing the concrete mixture, or by brushing, scoring or otherwise treating the faces of the units while they are in plastic condition.

For both interior and exterior walls a very attractive finish can be secured by means of portland cement paint which is available in a wide selection of colors. The paint may be used in one color, imparting a solid color effect, or in two colors giving the surface a two-tone effect. In either case the joints between the units remain visible and the sturdy appearance of the walls is emphasized.

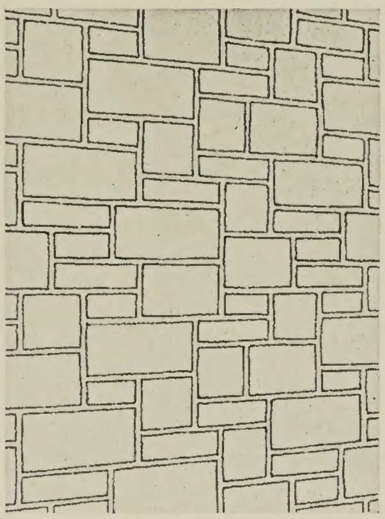
A pleasing two-tone effect is produced by spraying the entire surface with portland cement paint and then touching the high spots with a paint of a different color, usually of a lighter tint. For interior work, where it is desired to preserve the beauty and the natural acoustical properties of open-textured concrete ashlar, the paint usually is applied in such a manner that it coats the entire surface without filling the tiny depressions which serve to absorb sound waves. Where a two-color finish is desired, the second coat is carefully brushed on the surface but not in the depressions which retain the tone of the first coat. The general color tone of the room is that of the second coat of paint, but the innumerable small depressions in the surface show through the second coat to provide an interesting two-tone effect.



Coursed concrete ashlar, using variable sized units, in which horizontal mortar joints are continuous only at definite intervals.

Variegated effects can be obtained by spraying the concrete units with portland cement paint of different colors which blend well together. This type of finish was used for the Berks County Prison at Reading, Pennsylvania. Concrete ashlar was selected for the structure as the best means of obtaining a rugged yet beautiful exterior wall which would emphasize the details of the Gothic architecture of the building. As the concrete units were manufactured a suitable texture was produced by spraying the surface of the units with water and by scoring deeply with stiff brushes. The units were then sprayed with portland cement paint of several colors; the general effect is that of a distinct color tone of brownish buff. This color variation presents a very interesting appearance when viewed at either close or long range.

A somewhat similar type of concrete ashlar has been developed on the Pacific Coast where units of varying heights are combined with a few larger units of different lengths. It usually is common practice to point the mortar joints to emphasize the variation in size of the units and to produce suitable high lights and shadows on the wall surface.



Random concrete ashlar in the patterned manner. True random seldom is used because having a pattern simplifies the masonry work.

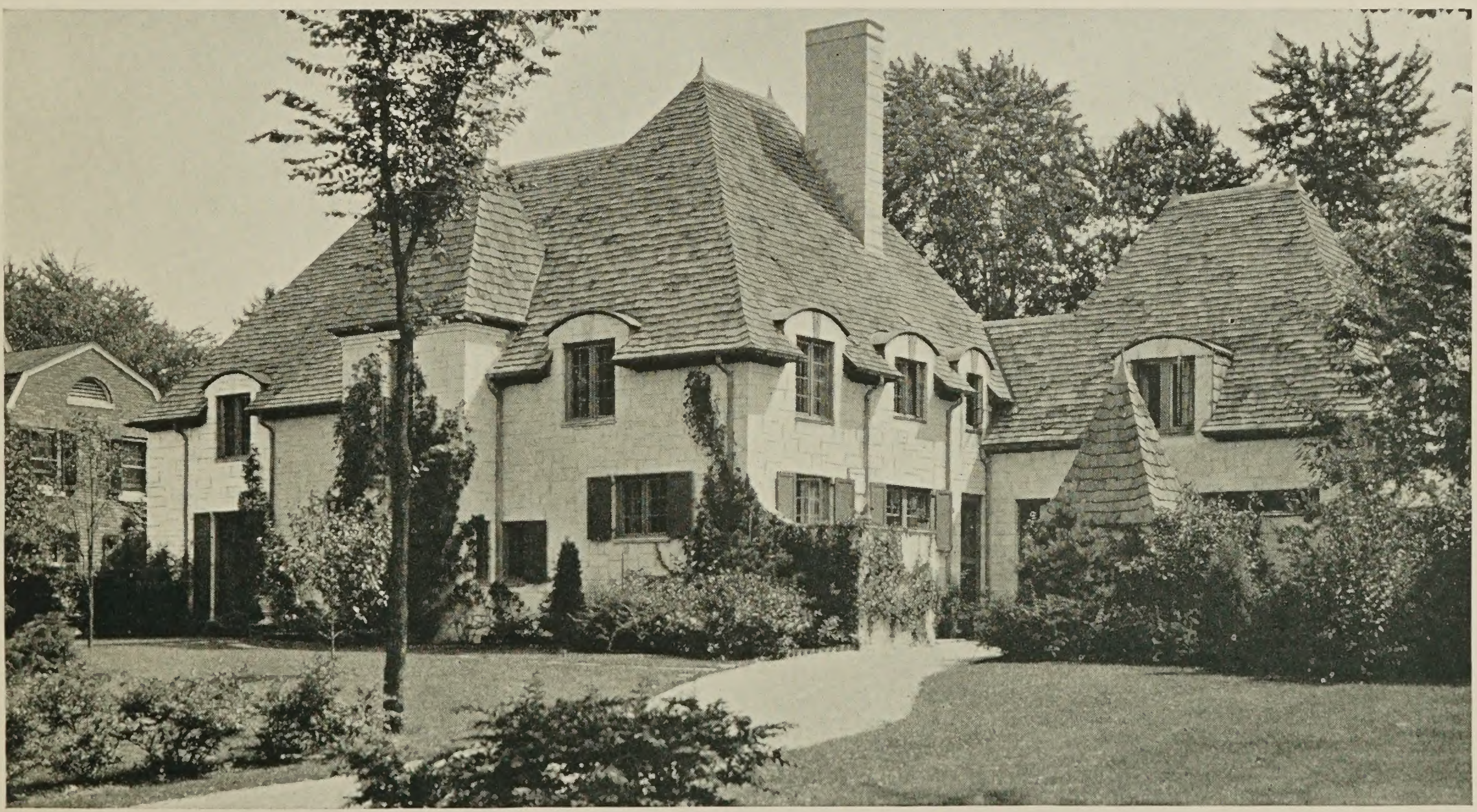
Having a wide selection in patterns, colors and textures when concrete ashlar is used, the architect or owner is sure to obtain a finish that will be distinctive and in harmony with the general decorative scheme desired. Concrete ashlar offers unlimited possibilities for decorative treatment at a cost which is very moderate.

The sound absorption properties of open-textured concrete ashlar is appreciated when good acoustical treatment is the objective. The acoustical properties of concrete ashlar at once suggest its use for walls in hotel rooms, apartments, class rooms, auditoriums, hospitals, private homes and, in fact, all modern buildings.

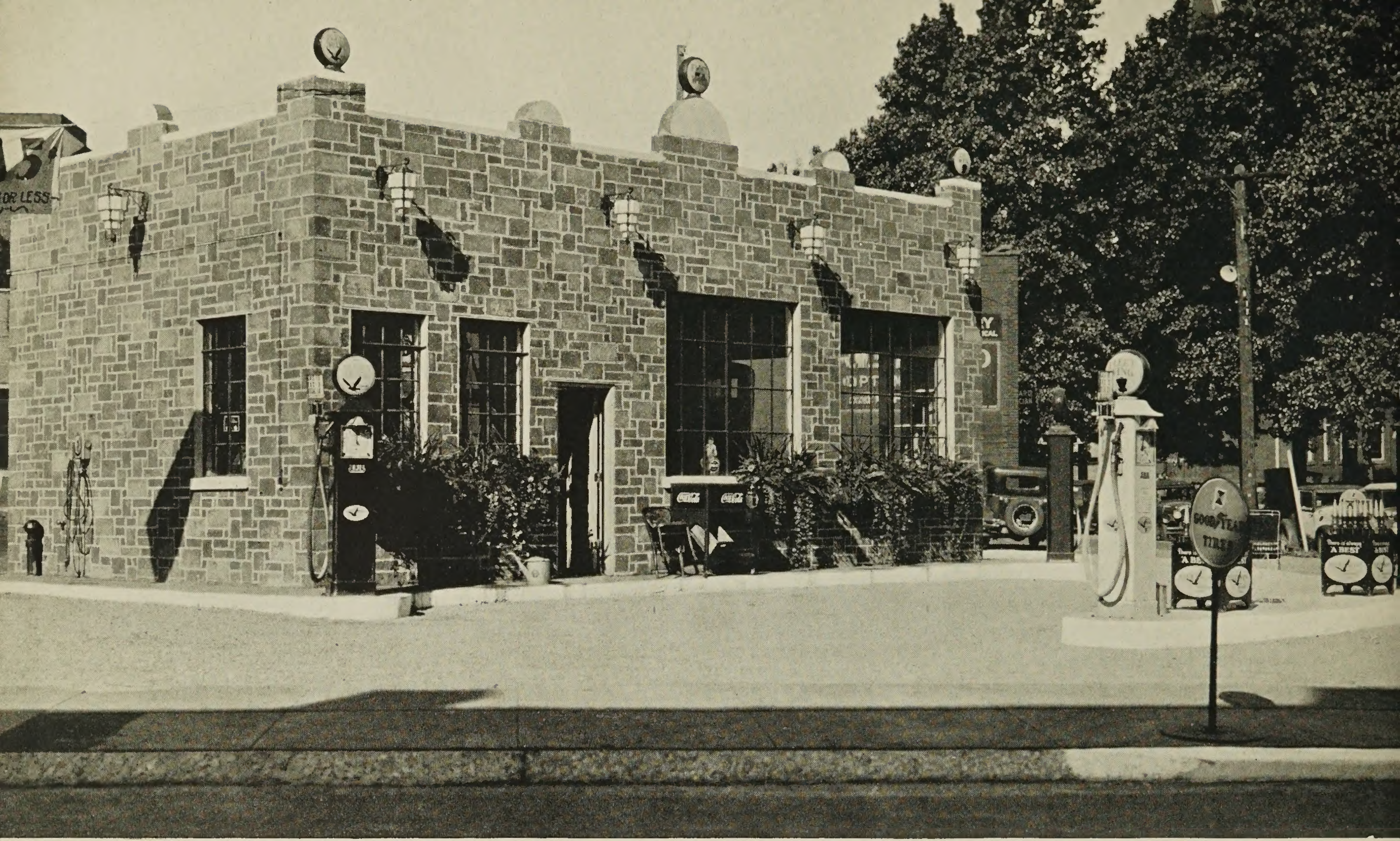
Concrete ashlar, then, is a type of construction providing adequate strength, superior fire resistance, unlimited opportunities for developing attractive walls, and desirable acoustical properties. And, with all these outstanding advantages, concrete ashlar is moderate in cost. The surface treatments suggested herein and illustrated with photographs on the following pages, such as the texturing of the units at the time they are made, the spraying of the individual units with paint, or the painting of the wall after it is erected, are obtained at a cost no higher than the usual cost of decorating.

Concrete ashlar deserves the most serious consideration for use in all types of building construction.

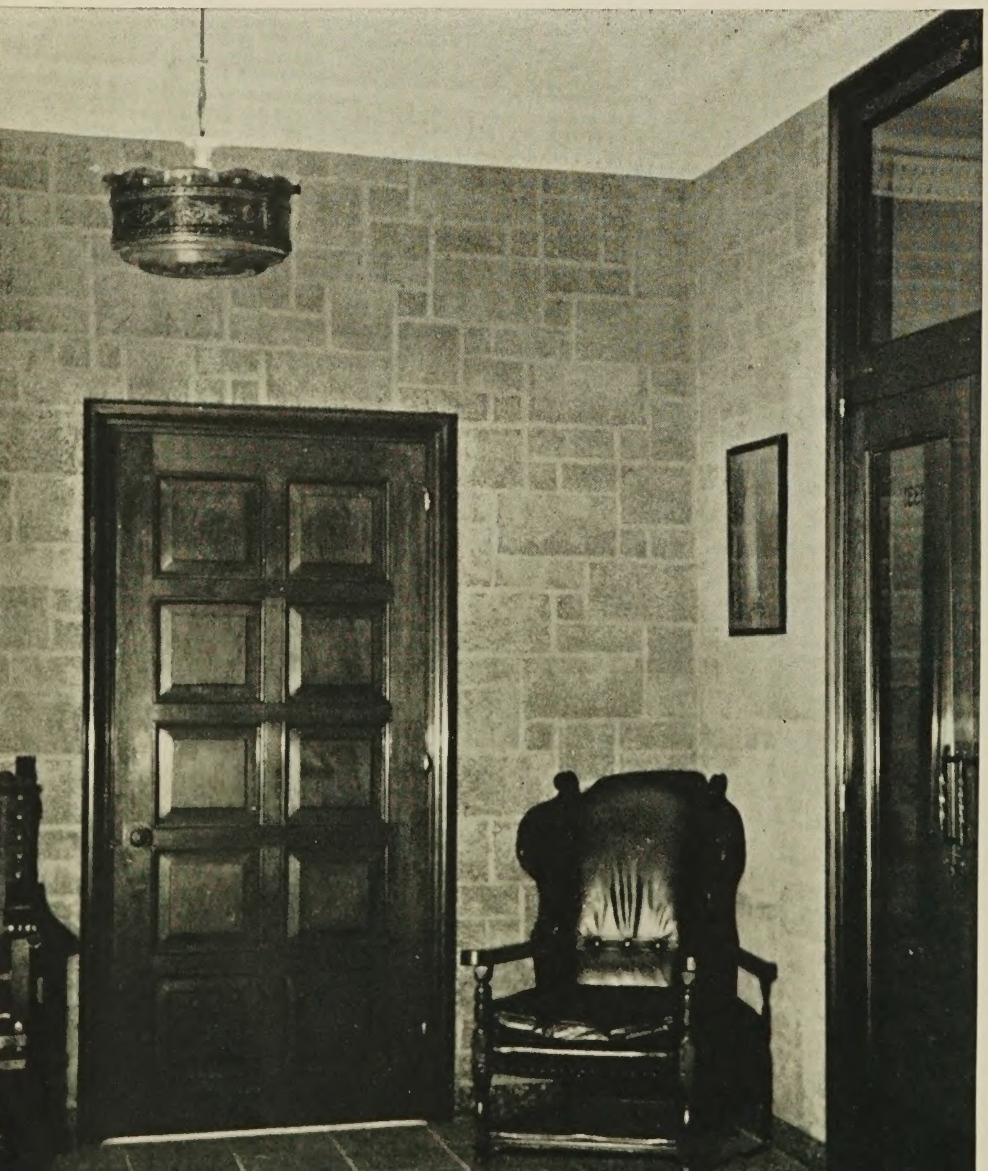
The concrete masonry industry is ready to cooperate with architects planning to use concrete ashlar. All modern plants can manufacture variable sized units meeting rigid specifications and producing attractive walls like those illustrated in this booklet.



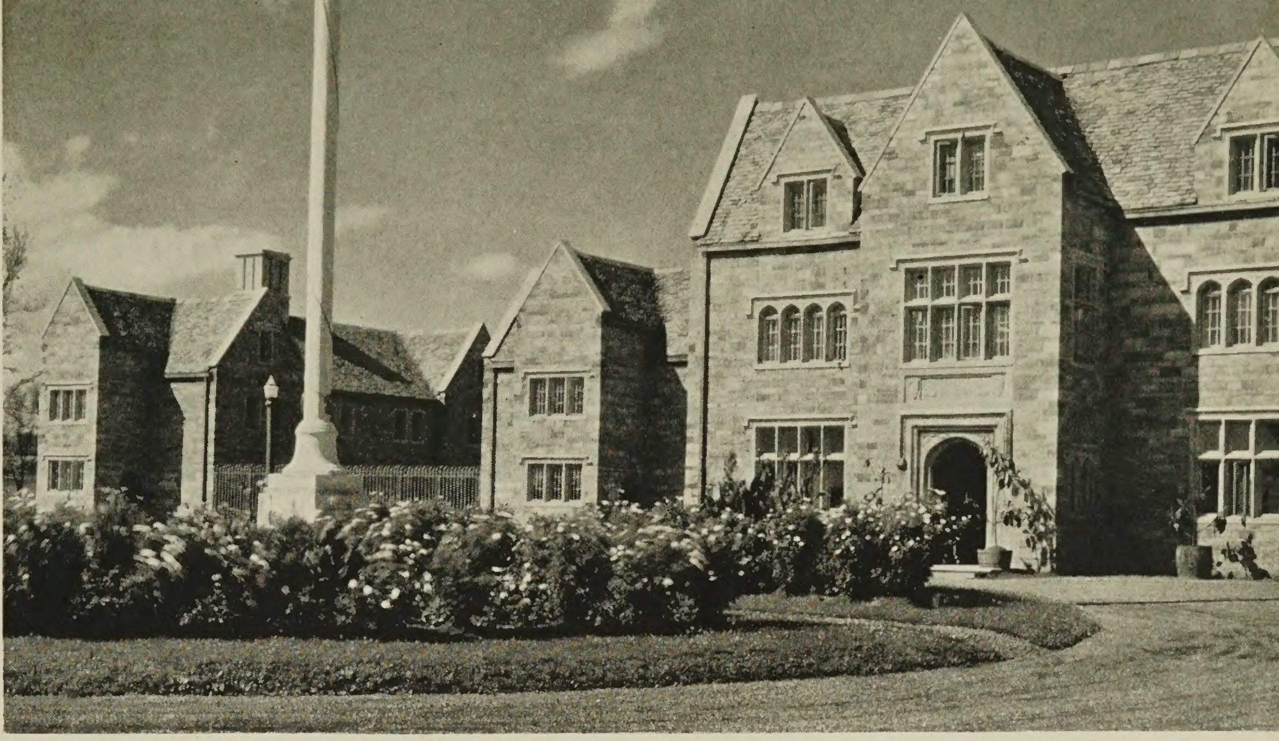
This modern material—concrete ashlar—offers definite construction economies for the mansion or the modest bungalow. D. Allan Wright, architect, designed the pattern for the random ashlar walls of the Alvan Macauley, Jr., home at Grosse Pointe, Michigan.



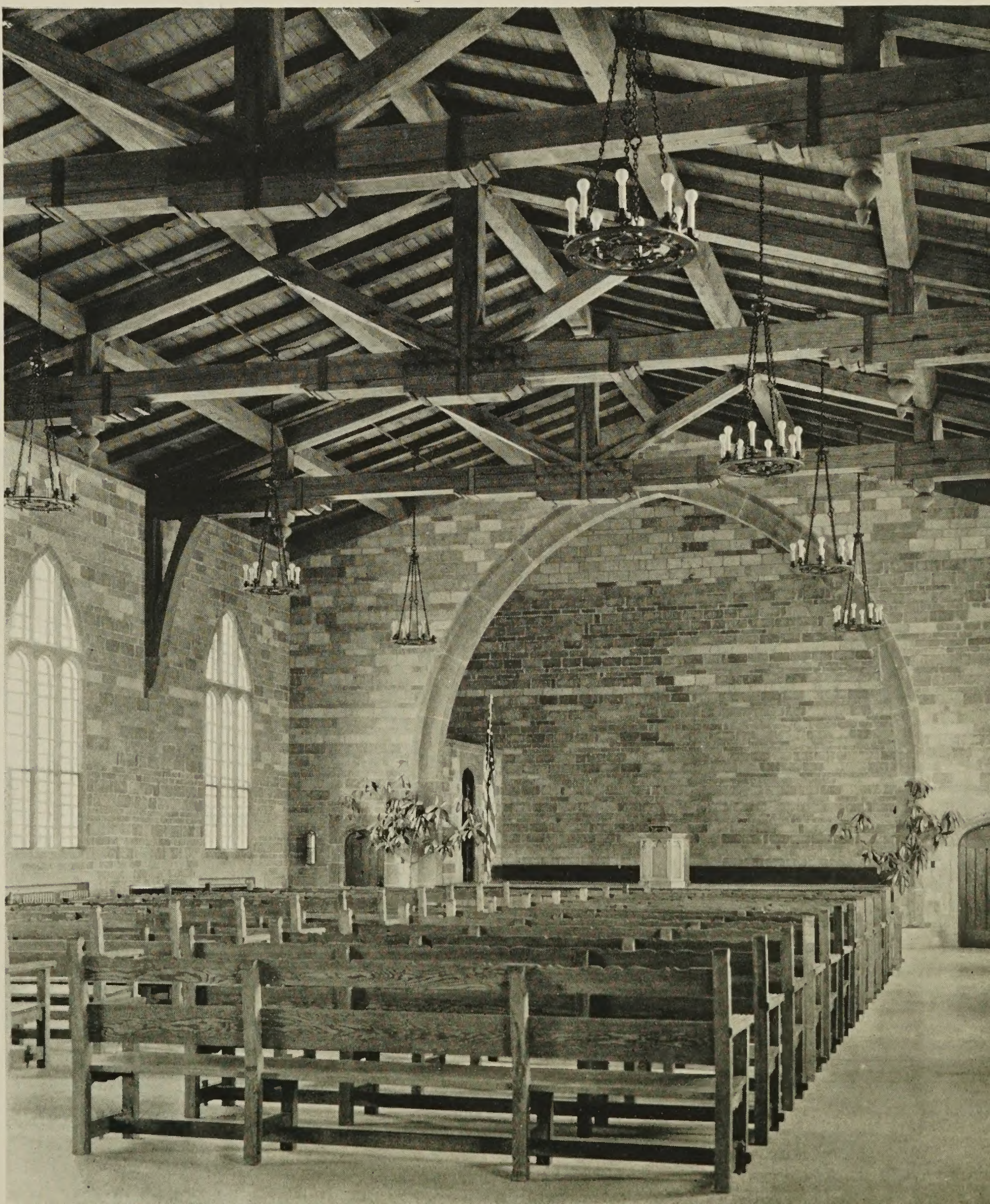
Today's industry and commerce demand good appearance as a requisite of business, and filling stations lead in this march of progress. The Great Lakes Oil Co., Erie, Pa., is one merchandiser at the front of the parade with concrete ashlar.



Offices achieve a new air of dignity and stability when finished with concrete ashlar. For new offices, partitions may be built in this way. For modernizing, concrete ashlar veneer may be used as facing for old surfaces. In the above office, units of light weight aggregates have been used to improve acoustics.

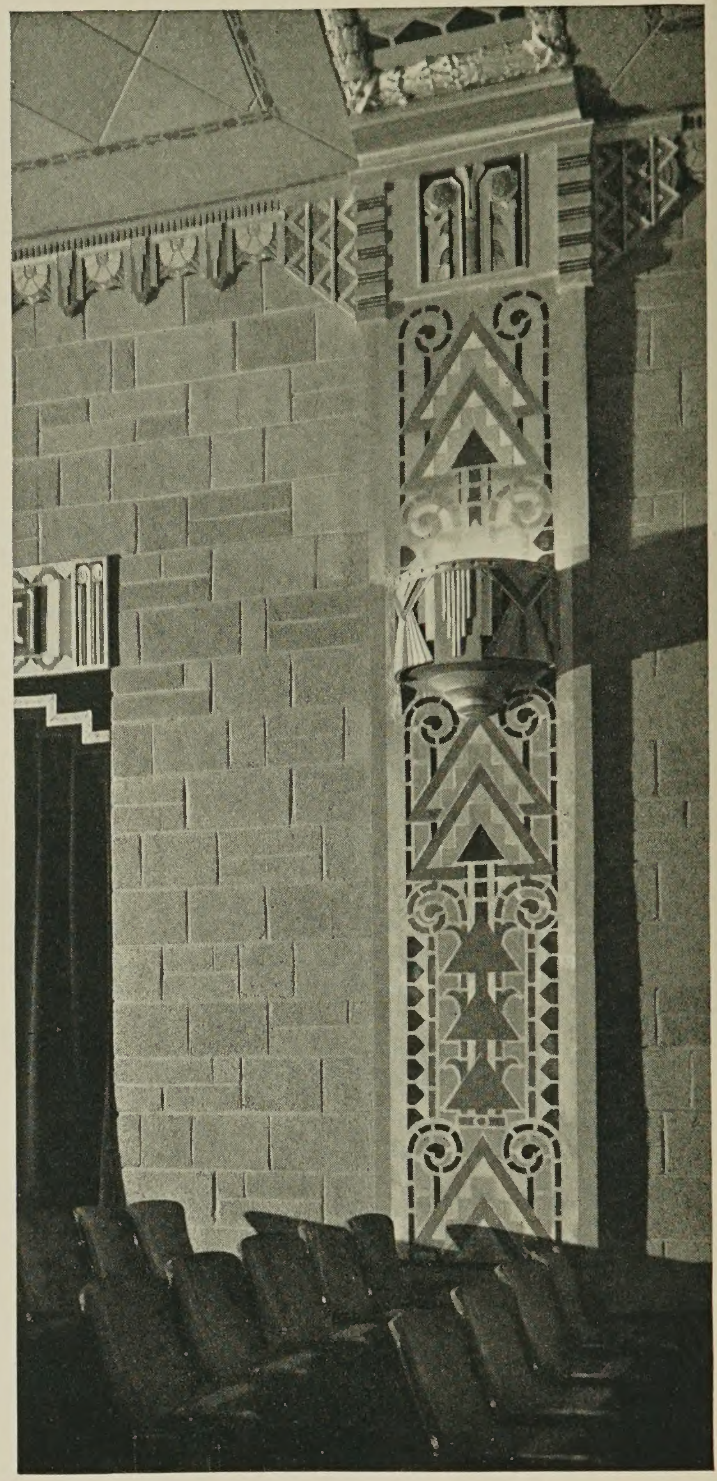


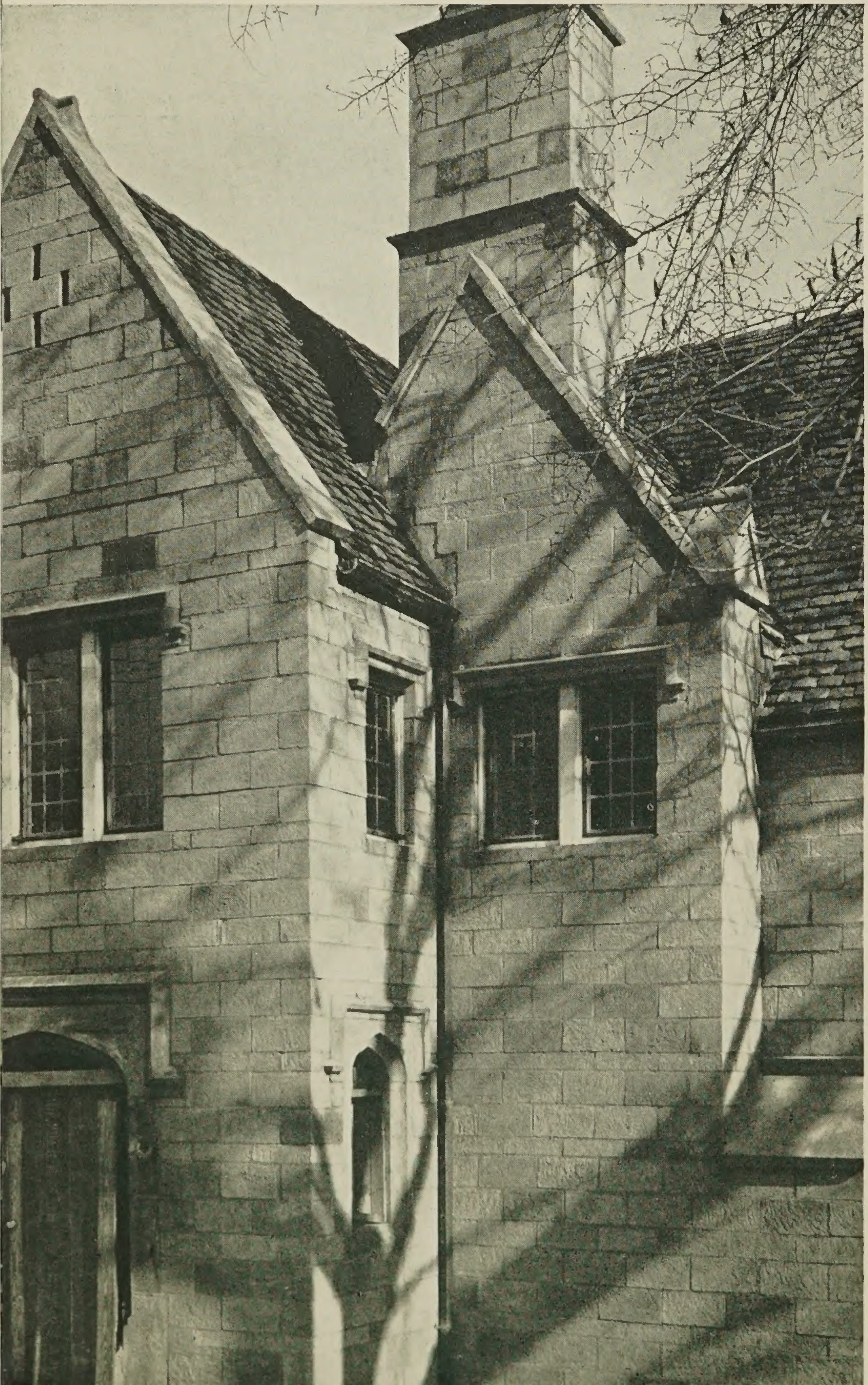
Public buildings, institutions or private structures can have distinctive appearance when concrete ashlar is appropriately combined with good architecture, as Alfred Hopkins and Associates so ably demonstrated in the Berks County Prison, Reading, Pa.



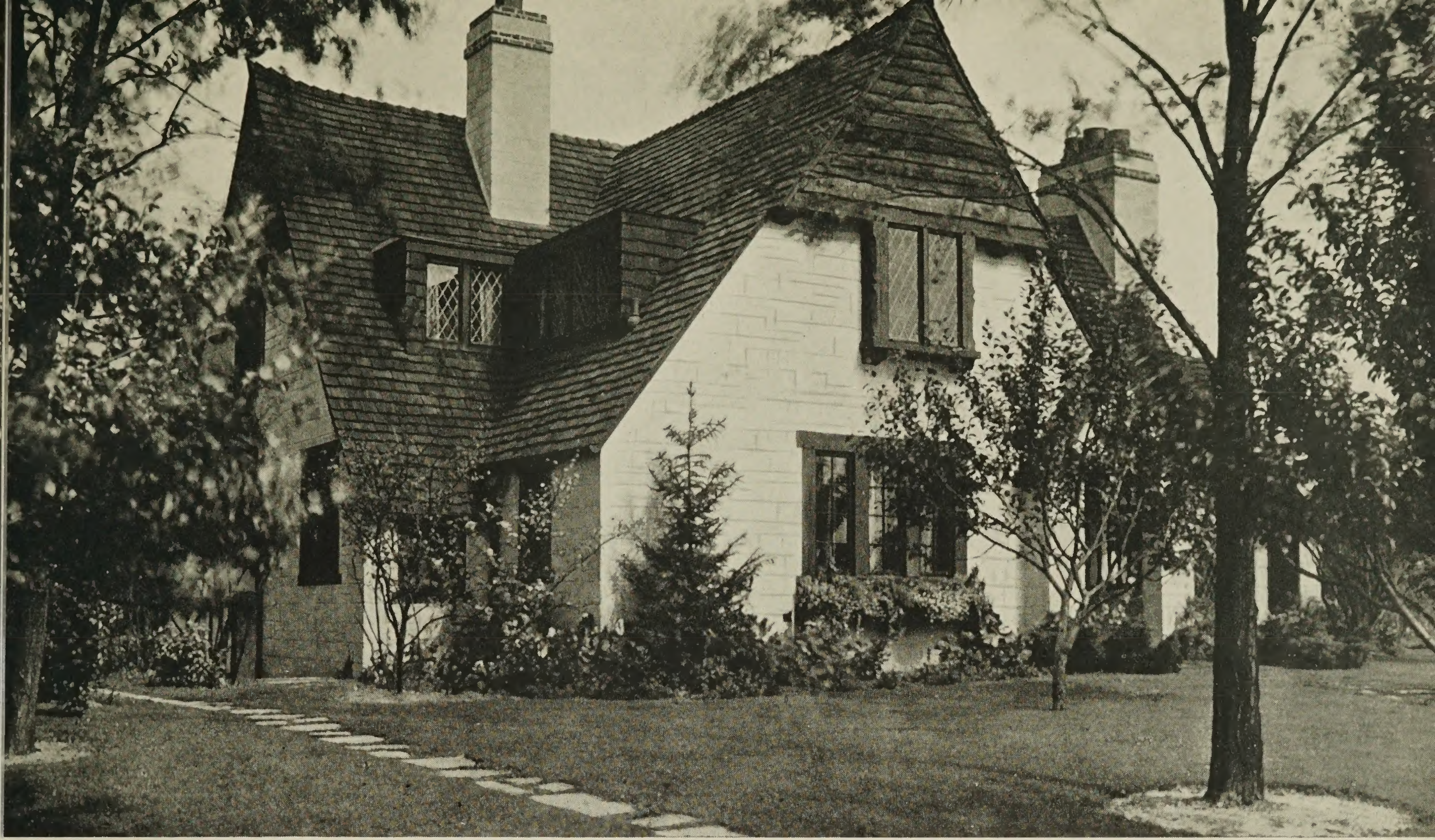
Attractive and inspiring interiors for chapels, auditoriums and assembly rooms may be produced without costly architectural treatment or lavish decoration. The simple, coursed concrete ashlar walls are most fitting for this chapel of the Berks County Prison.

A structural material with desirable acoustical (sound absorbing) properties, concrete ashlar is now popular for theater walls. That it is readily adaptable to any decorative motif is demonstrated in this section of the modernized interior walls of Virginia Theater, Detroit, Mich.



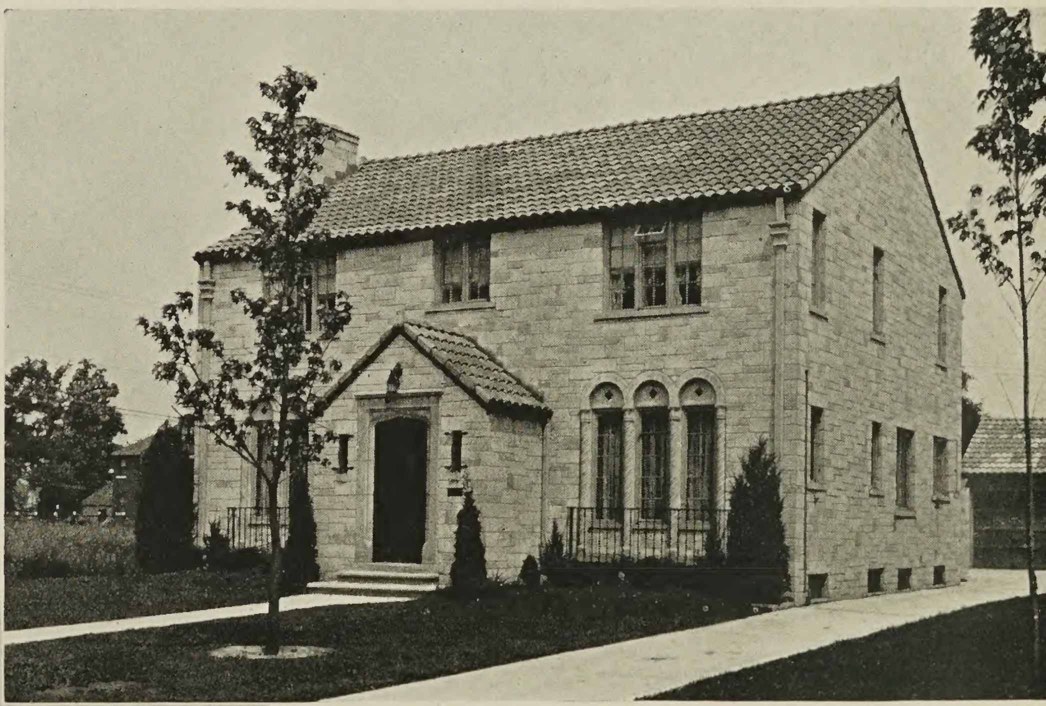


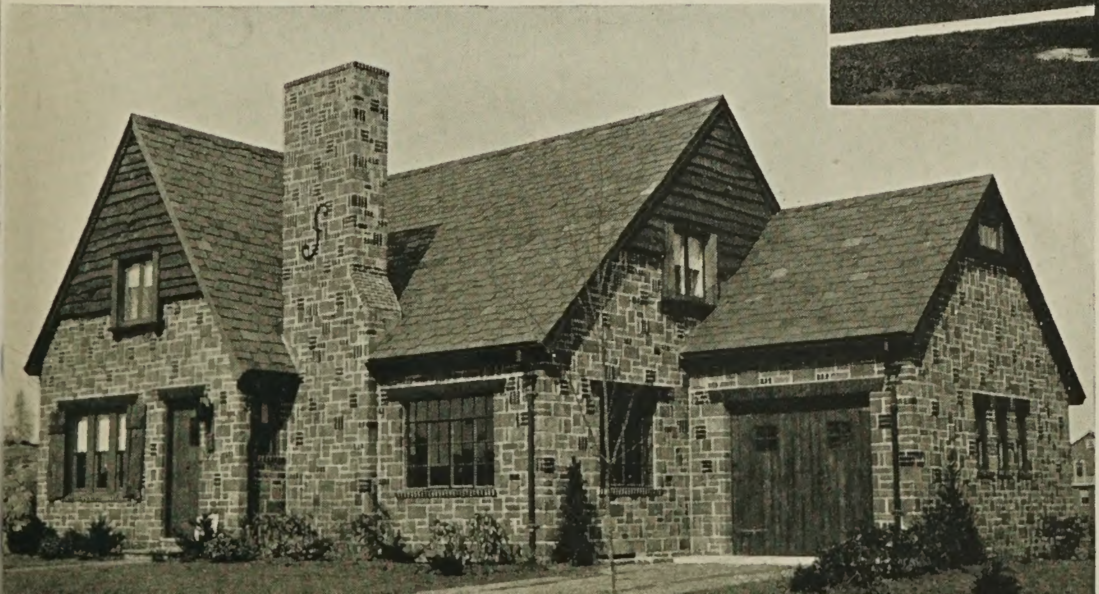
This close up view of the walls of L'Meinrad Mayer's new home at Scarsdale, N. Y., reveals one of the many distinctive textures that may be given to individual concrete ashlar units. Color, texture and shadow bring out the beauty of this treatment. Hopkins and Dentz, New York, architects.



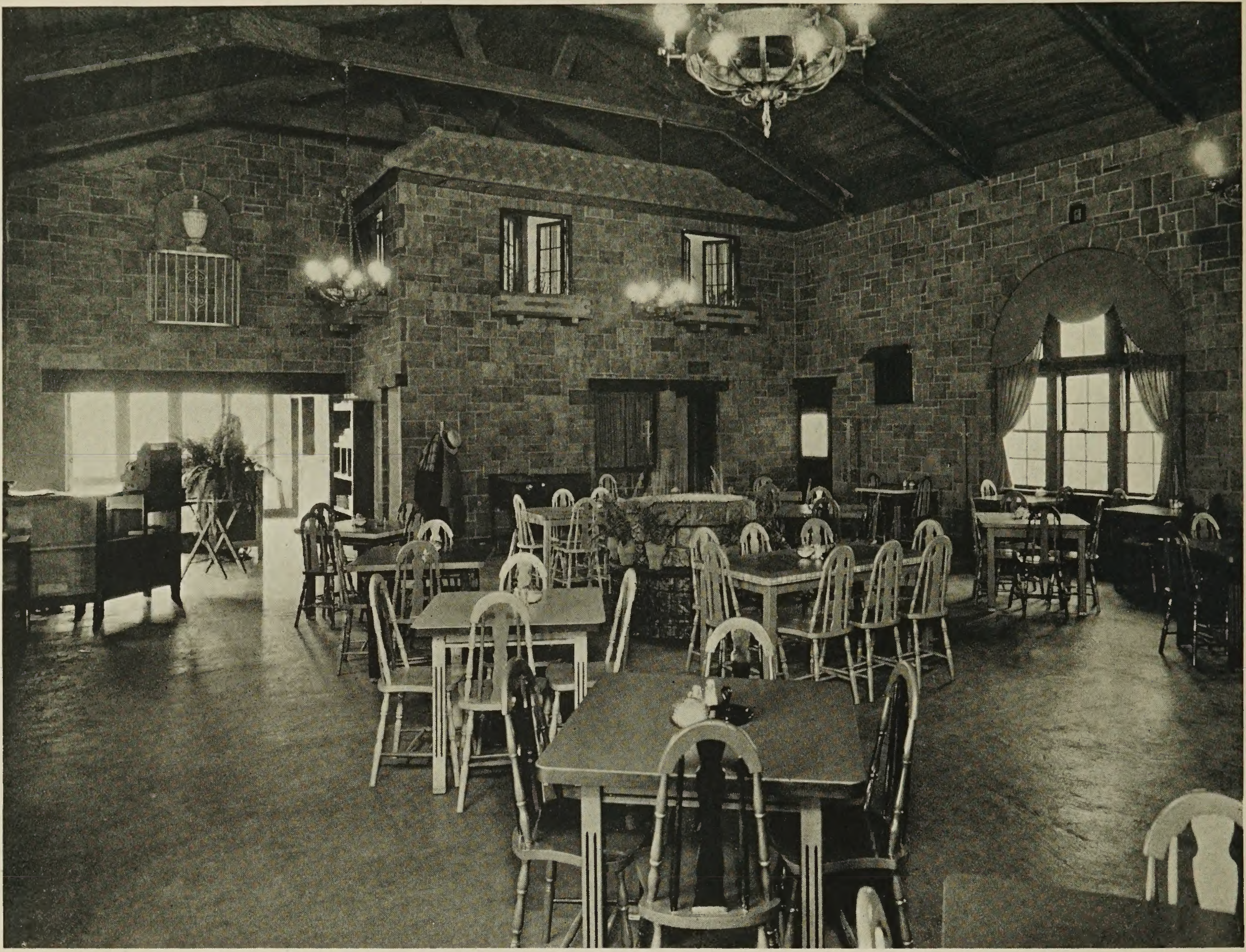
Designs expressing personality and individuality can be faithfully executed in concrete ashlar as was the home of Clarence E. Day, Lake Angelus, Mich.

A feeling of substantial formality is expressed in this house. Random concrete ashlar contributes largely to this effect. Exterior surfaces are painted with cement paint.



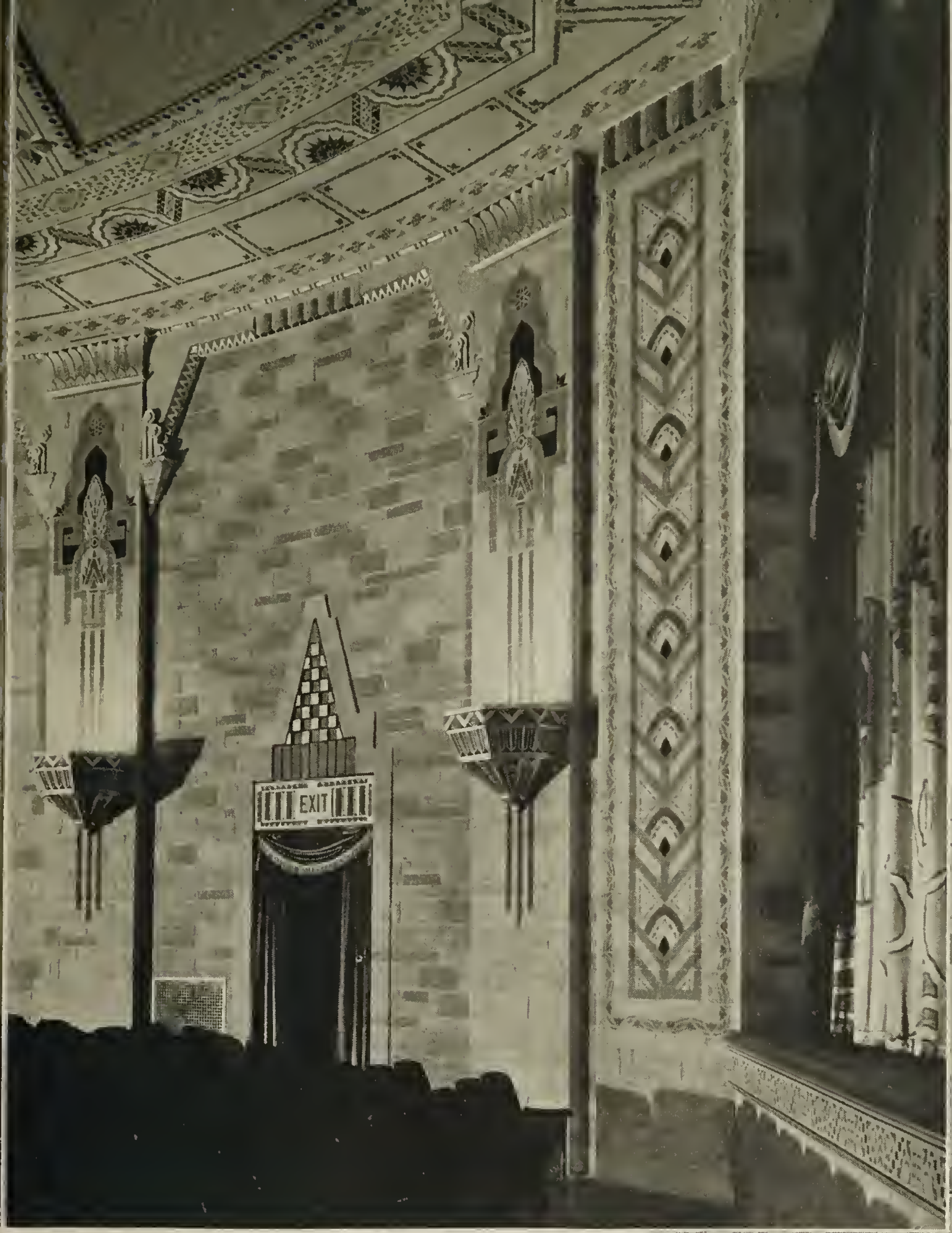


Strength and color were the objectives sought by the owner when he built this home at Marblehead, Mass. Both were achieved with concrete ashlar.

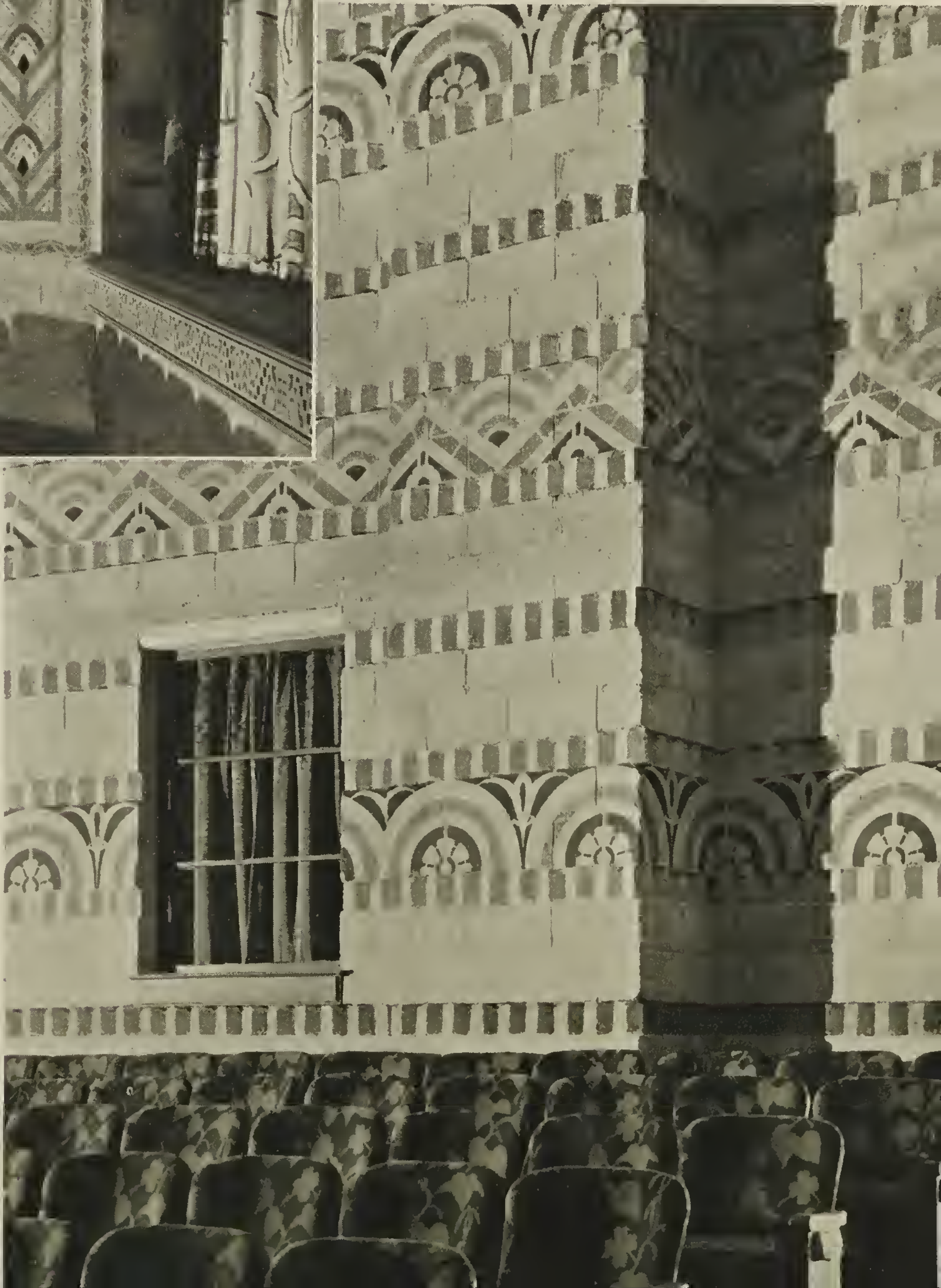


Diners at the Castilla Cafe, Kansas City, Mo., know that while food comes first, a good setting is also essential for the full enjoyment of a fine meal. To obtain attractive walls, the architect chose concrete ashlar. To eliminate distracting noise, concrete masonry units made of light weight aggregates having sound absorbing properties were used, assuring guests of a quiet, home-like atmosphere.

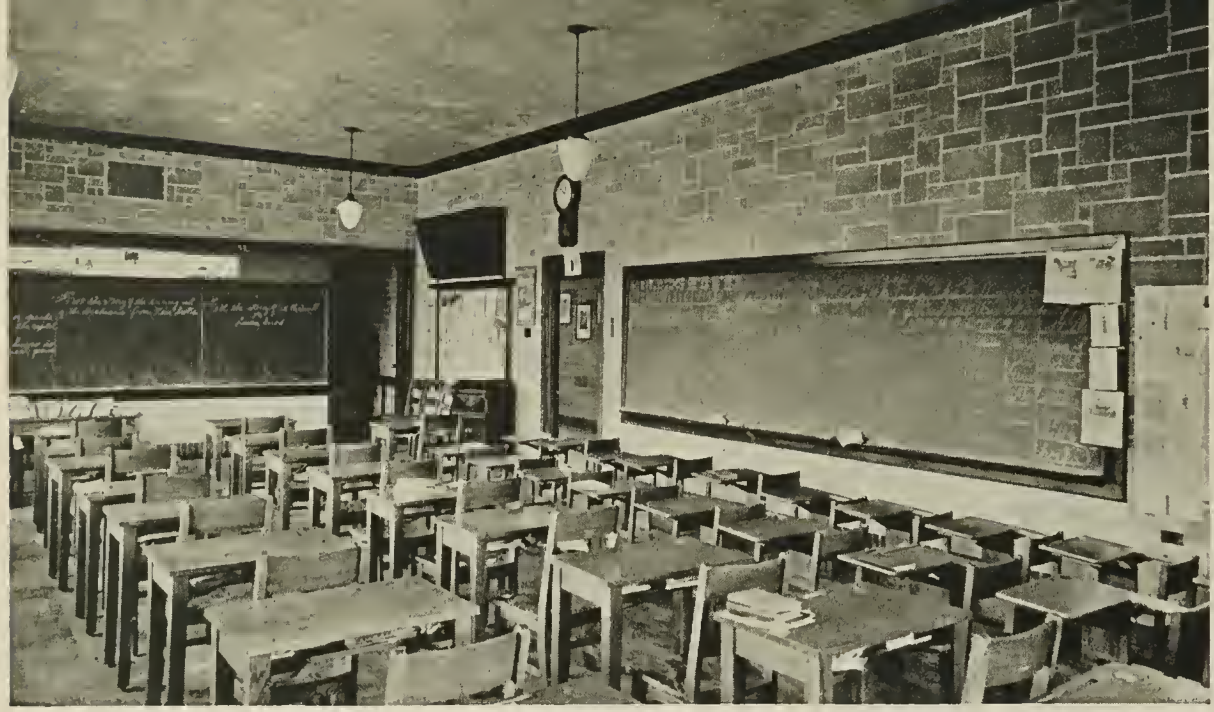
Radio stations know the importance of good acoustics. Station KSO, Des Moines, Iowa, was among the first to appreciate the advantages of concrete ashlar for such requirements.



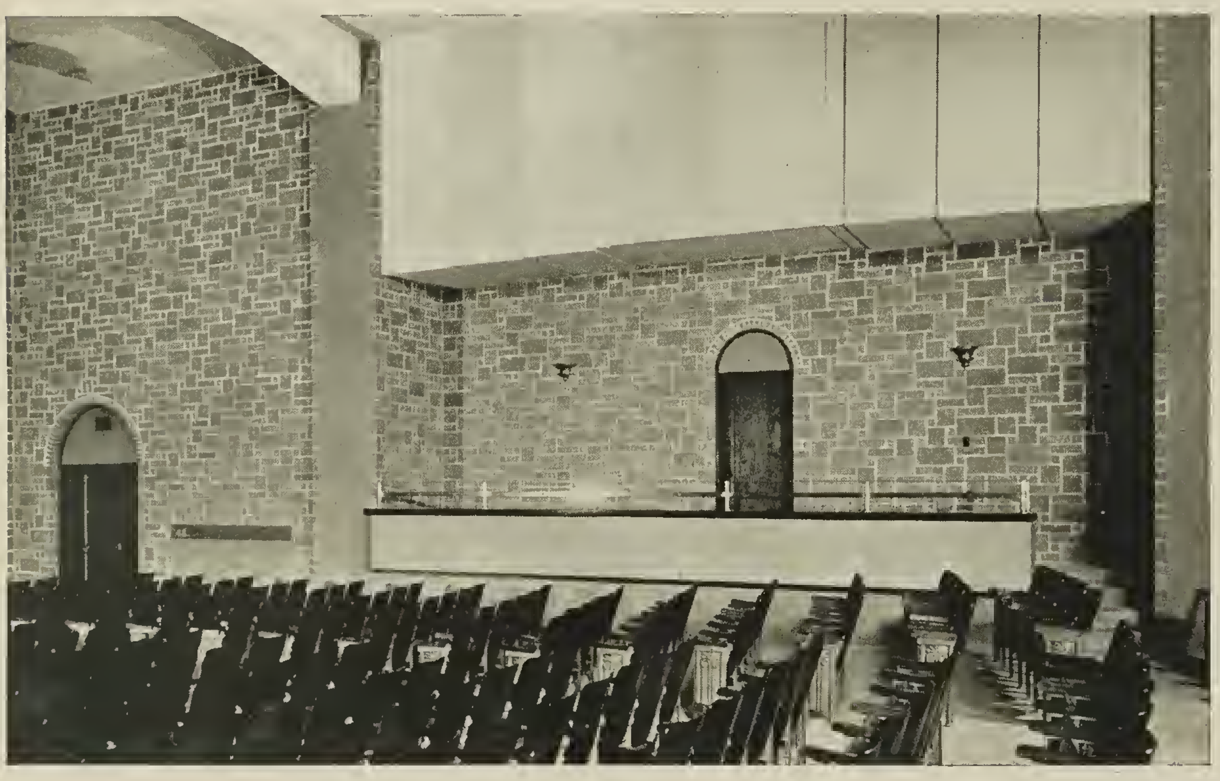
The success of sound picture performances lies in the control of sound within the theater. The popularity of a theater also depends upon the beauty of the interior. But, when Midway Theater at Dearborn, Mich., was built, economy was also essential. Concrete ashlar walls successfully met these requirements. Patrons approve the architect's and owner's choice.



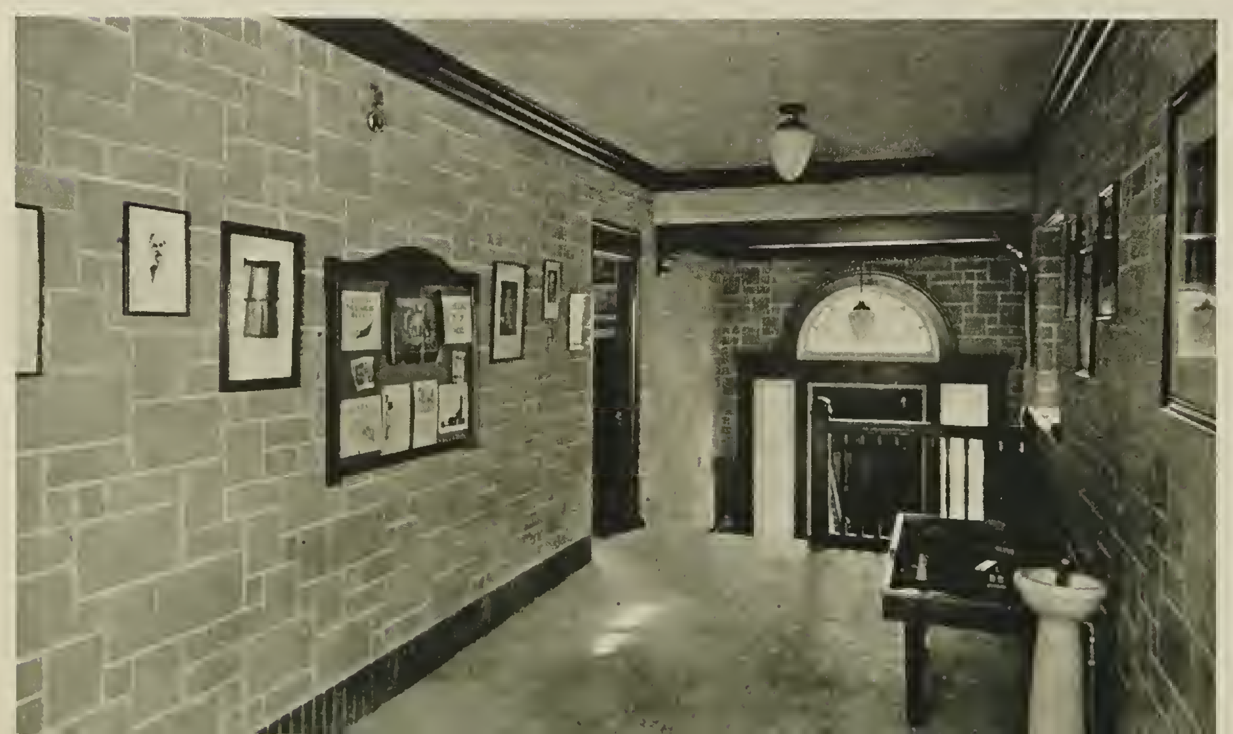
Concrete ashlar accepted the challenge of Arthur K. Hyde, architect, and produced just the effect that a fertile mind envisioned for Detroit's Tower Theater. All over the country, for new theaters and old, architects and owners are calling on concrete ashlar to obtain the modern effects and meet the high standards required for movie houses today.



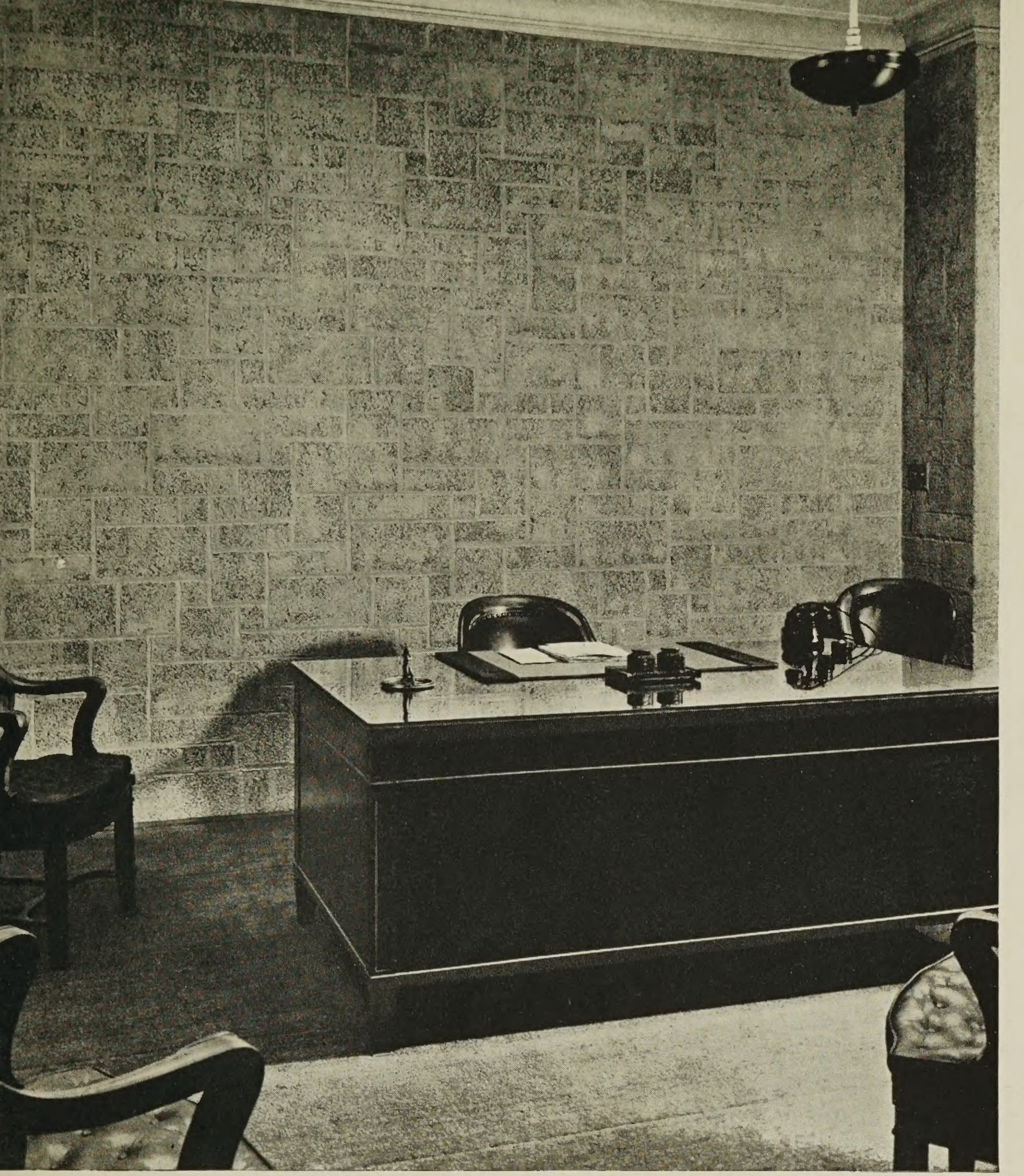
To produce ideal classroom atmosphere, the room must be pleasant and quiet. Architects are now building quiet into schools—in study rooms, halls and assembly rooms. And they find that with the use of concrete ashlar, quiet, sound absorbing walls cost no more than ordinary walls.



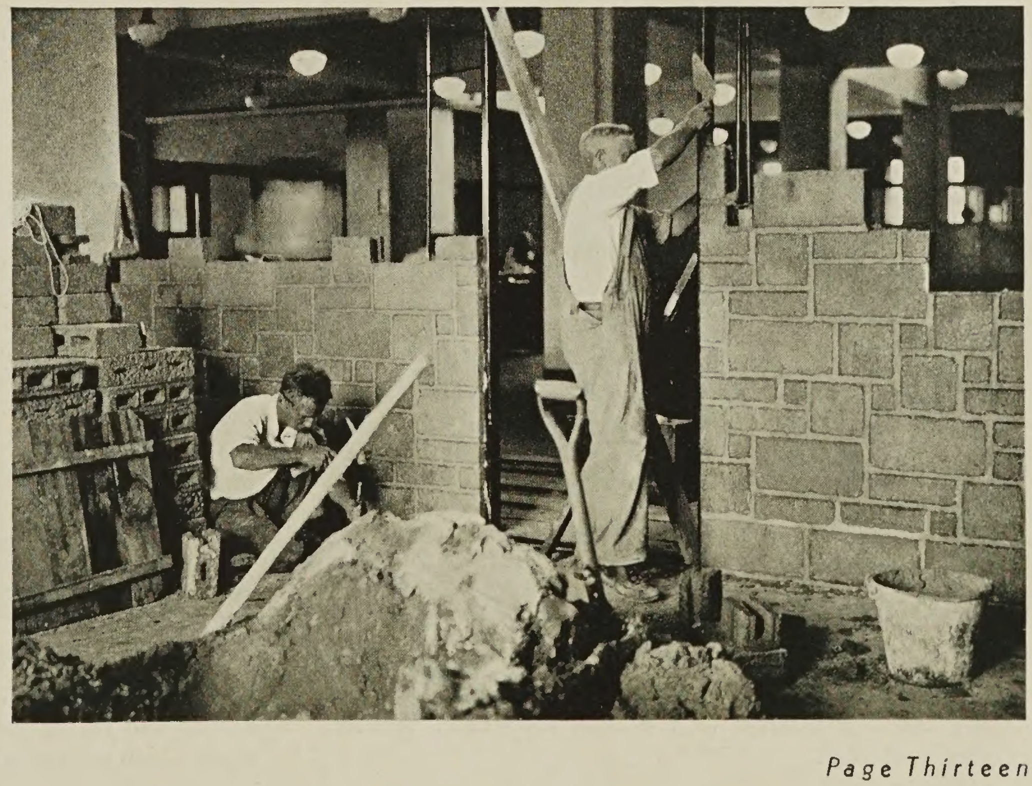
Canada is keeping pace in this new trend in school construction. In the auditorium of Loyola College, Montreal, Henri S. Labelle, architect, used exposed concrete ashlar for acoustical qualities so vital in an assembly hall of this character.



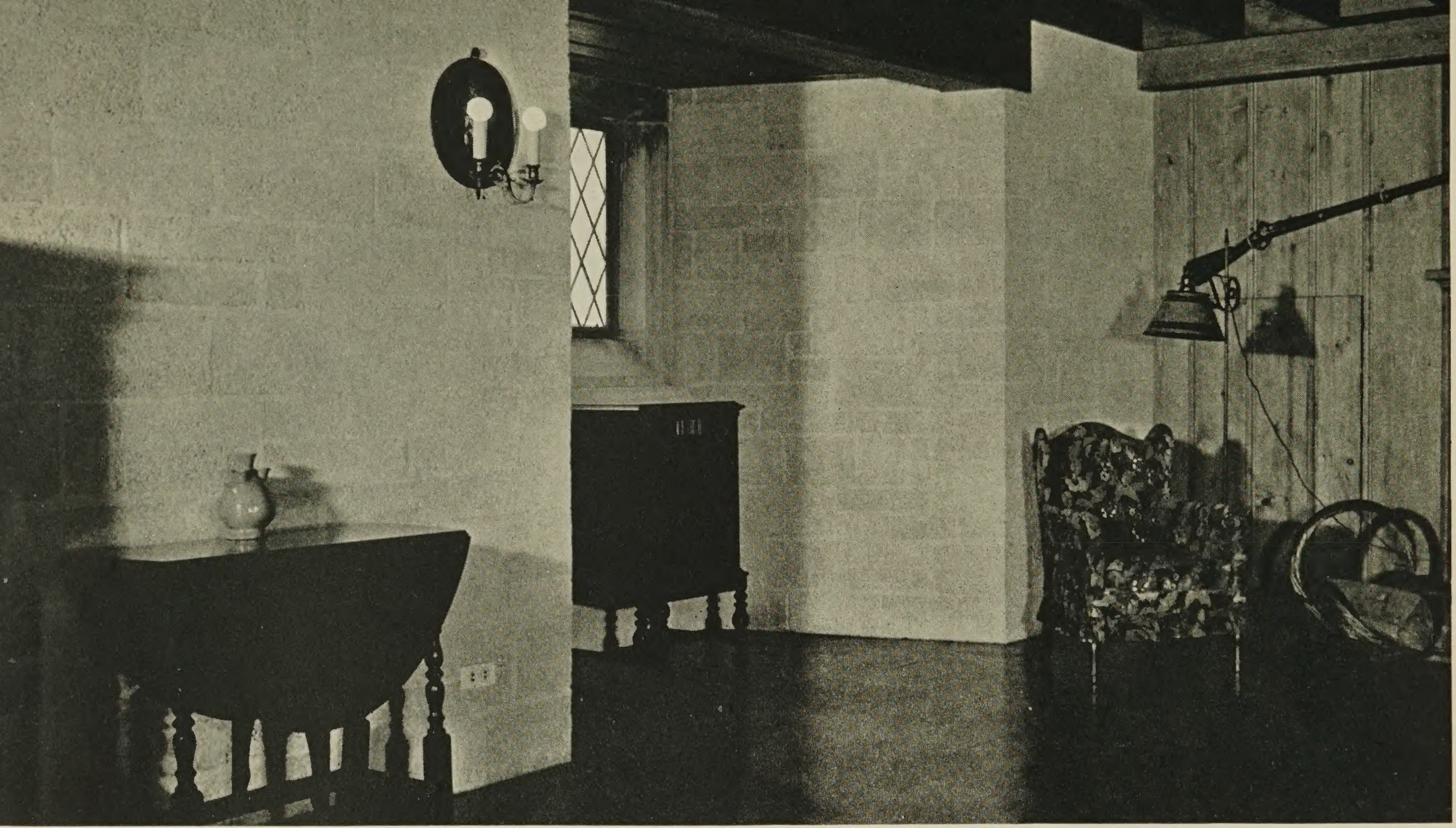
When it costs no more, why not have it? So—up and down corridors, in entranceways, wherever youngsters could make distracting noise—sound absorbing concrete ashlar was used in this modern, scientifically designed and constructed school.



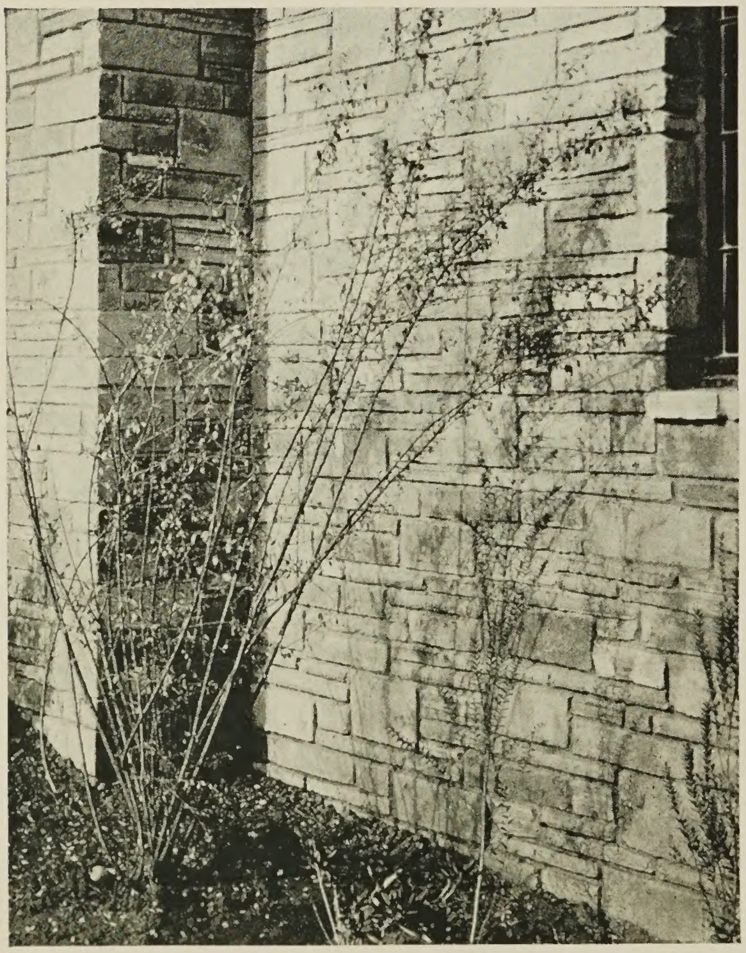
Employers today are seeking ways to reduce noise and distraction for their workers. In the front office where prestige is made or lost, concrete ashlar can be decorated to impress. Where appearance is less important, the pleasing grey of undecorated concrete ashlar satisfies. Ornamented to the king's taste, or unfinished, concrete ashlar improves thinking and efficiency.



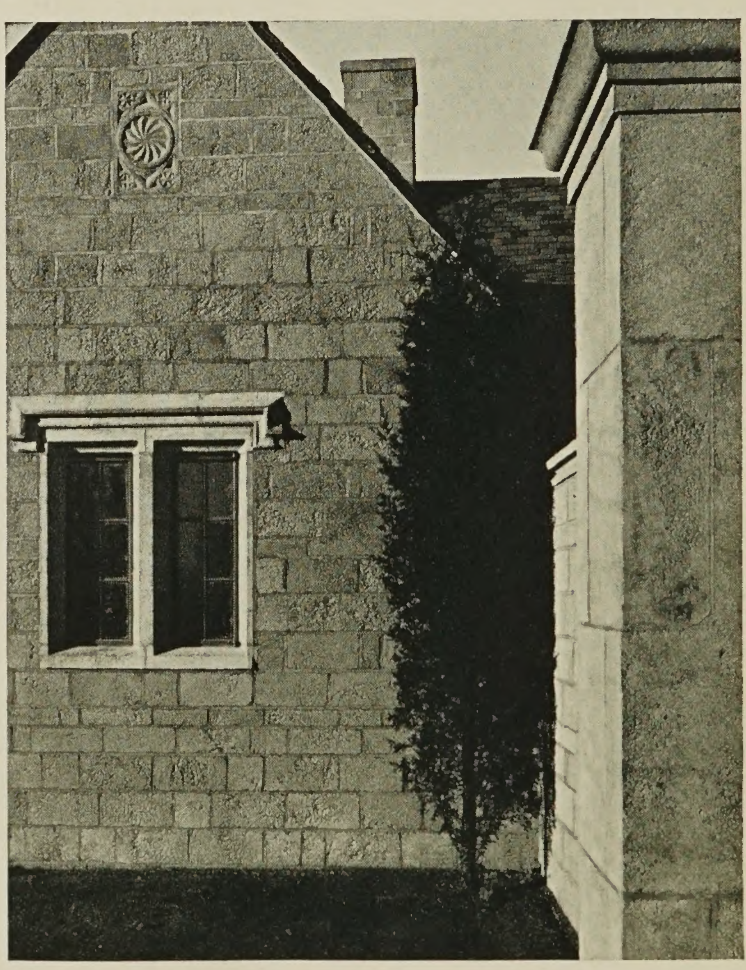
In a short time this plain corner of a large office was partitioned off, transformed into a private office (above) in which a busy executive might work undisturbed by noisy routine. After the mortar joints were pointed the whole wall surface was finished with contrasting colors of cement paint.



The popularity of basements finished into attractive recreation rooms, demands foundation materials that have definite decorative values. In this Detroit home, concrete ashlar, in random patterns painted in a light color, serves the dual purpose of foundations and ornamental walls.



In the walls of this Los Angeles residence, mortar joints are raked to emphasize the ashlar character of the concrete masonry, adding interest to the wall treatment. William Kraemer, architect.



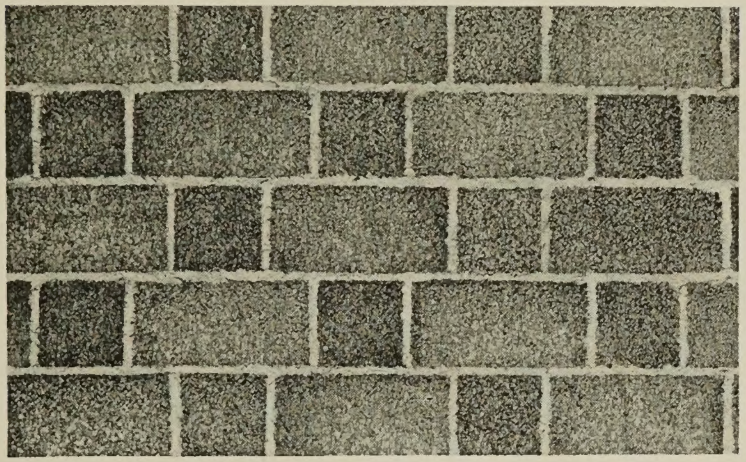
The colorful effects achieved in the walls of the various buildings on the W. A. Flinn farm, Banksville, Conn., are due to the variegated textures of the concrete ashlar units used. (Also see cover.)

AVERY CLASSICS

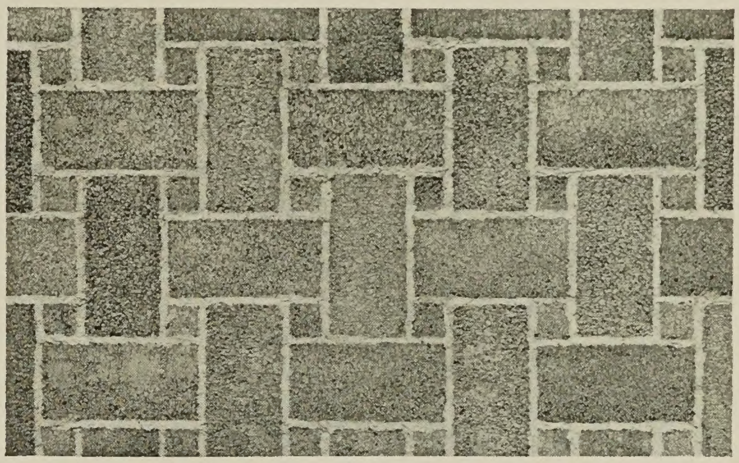
Suggested Concrete Ashlar Patterns

IT is recommended that standard sizes of concrete masonry units or multiples of standard sizes be used wherever possible in ashlar work. The fewer sizes used, the greater the economy of the wall construction. Most manufacturers of concrete masonry units are equipped to produce standard sizes and a number of multiples which may be worked into coursed or random ashlar patterns.

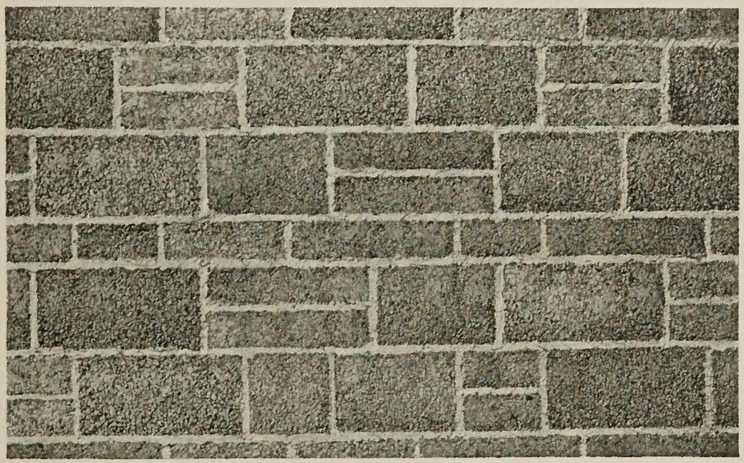
Many interesting wall variations may be developed by using only a few sizes of units. Mortar joints also may be handled to produce various effects, depending upon the size of the joints, the manner in which they are struck and the color of the mortar used. Joints may be ¼ to 1 inch in thickness. They may be struck flush with the wall surface, raked or tooled, left rough in the *adobe* manner, or treated in other ways which the architect may devise. The color range is unlimited.



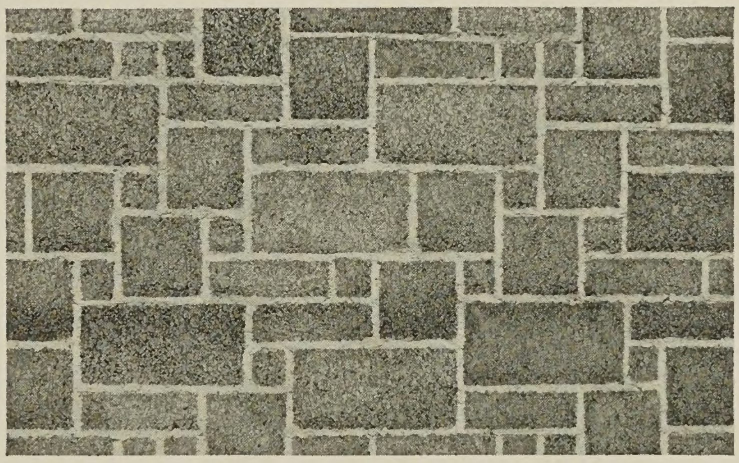
Coursed ashlar pattern using two sizes of concrete masonry units—8 by 16 and 8 by 8. The horizontal joints are continuous on 8-inch centers, the alternating pattern repeating in each course.



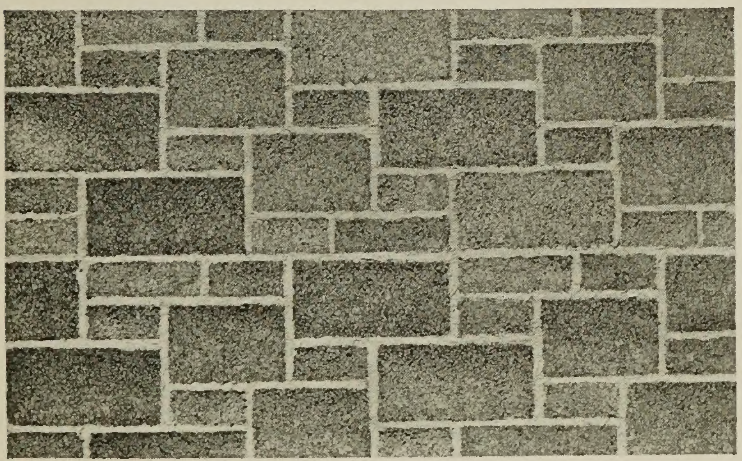
This basket weave effect is produced by using only two nominal sizes of concrete masonry units, 8 by 16 and 4 by 4 inches. This is random ashlar with no continuous horizontal joints.



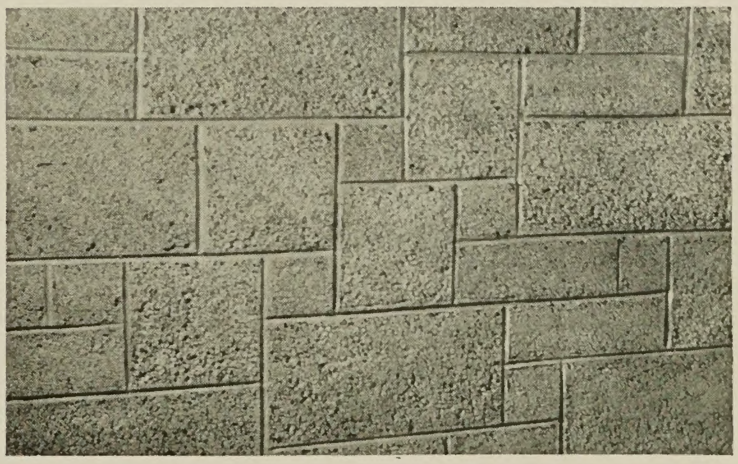
Another example of coursed ashlar. Here there is one 4-inch course to each pair of 8-inch courses. The pattern is formed by units with nominal face sizes of 8 by 16, 8 by 12, 8 by 8, 4 by 16, 4 by 12 and 4 by 8 inches.



This popular random ashlar effect is achieved by the use of only four nominal sizes of concrete masonry units—8 by 16, 8 by 8, 4 by 12 and 4 by 4 inches. Pattern repeats in each square yard of wall area.



A pattern which combines coursed and random effects has continuous horizontal joints every two feet. Face sizes of masonry units are 8 by 16, 8 by 12, 4 by 12 and 4 by 8 inches. Pattern repeats horizontally every 3 feet.



Finished section of random ashlar wall of pattern immediately above. The joints have been neatly pointed and cement paint has been added to the surface. Note that finish treatment has erased neither texture nor pattern.

Before You Build . . .
Investigate Concrete Ashlar!

ASK your architect to design your new home . . . office . . . commercial building . . . in concrete ashlar. With concrete ashlar he can give you the utmost in reasonable cost, beauty in texture, color and pattern, acoustical treatment and firesafety.

If you desire further information ask any reliable manufacturer of concrete masonry building products in or near your community. He will be glad to give you free estimates of cost for beautiful, economical, firesafe walls of concrete ashlar.

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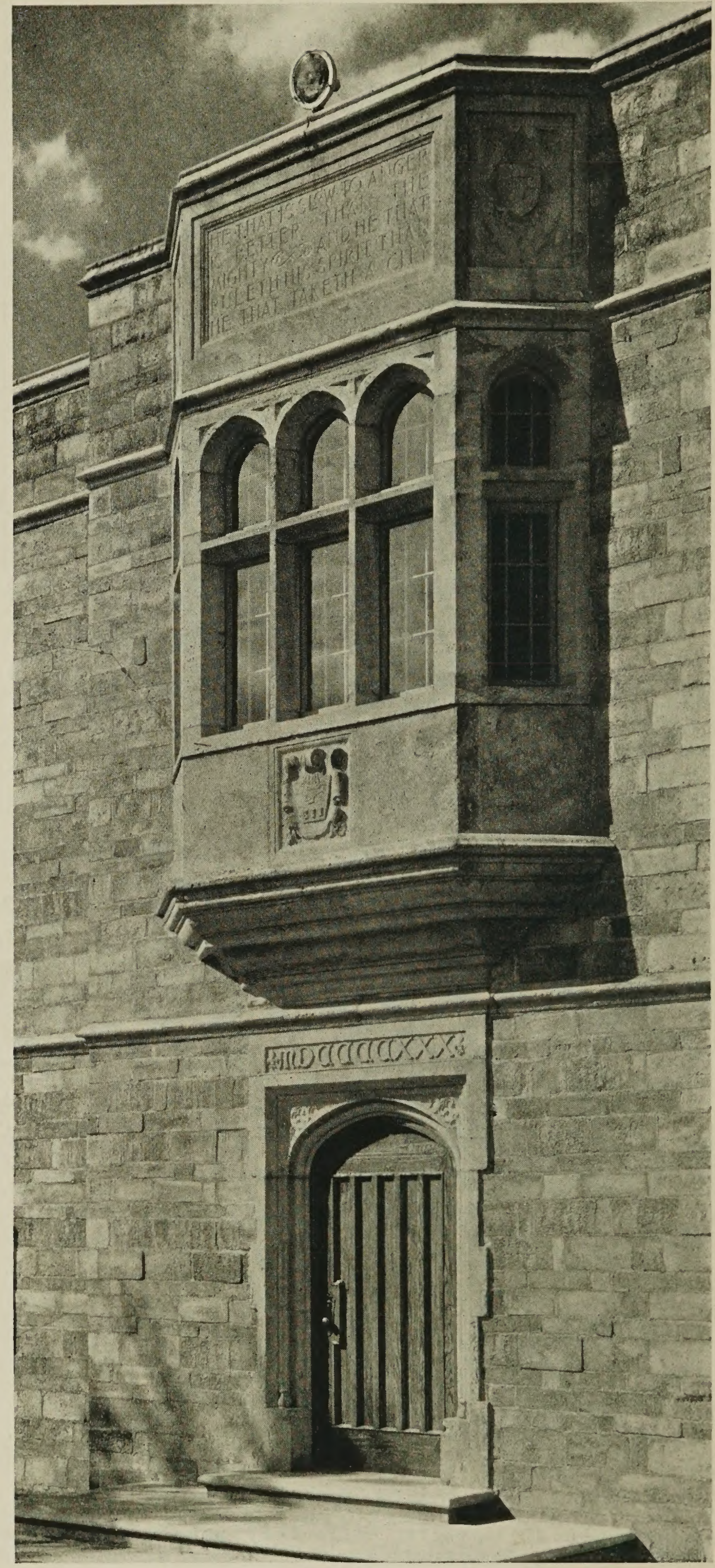

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